

# COMPOUND INTEREST FORMULA

The diagram illustrates the compound interest formula  $A = P \left( 1 + \frac{r}{n} \right)^{nt}$  with the following components and labels:

- Top Left Box:** Points to the variable  $A$ , representing the final amount.
- Top Middle Box:** Points to the variable  $P$ , representing the principal amount.
- Top Right Box:** Points to the variable  $r$ , representing the annual interest rate.
- Middle Right Box:** Points to the variable  $n$ , representing the number of compounding periods per year.
- Bottom Left Box:** Points to the variable  $nt$ , representing the total number of compounding periods.
- Bottom Right Box:** Points to the variable  $t$ , representing the time in years.
- Large Dark Grey Box:** Points to the entire formula, representing the compound interest formula.

$$A = P \left( 1 + \frac{r}{n} \right)^{nt}$$

# Compound Interest

Period	Interest Credited	Times Credited per year	Rate per compounding period
Annual			
Semiannual			
Quarterly			
Monthly			
Daily			

Name: \_\_\_\_\_ Period: \_\_\_\_\_ Date: \_\_\_\_\_

### Compound Interest Practice Worksheet

**Directions:** Use the formula  $A = P \left(1 + \frac{r}{n}\right)^{nt}$  where  $A$  represents the total amount,  $P$  represents the principle,  $r$  represents the interest rate as a decimal,  $n$  represents the number of times per year interest is compounded, and  $t$  represents the time in years to answer the questions below.

1. A coin had a value of \$1.17 in 1995. Its value has been increasing at 9% per year. What is the value after 5 years?
2. Gina deposited \$1500 in an account that pays 4% interest compounded quarterly. What will the balance be in 2 years?
3. The Garcias have \$12,000 in a savings account. The bank pays 3.5% interest on savings accounts, compounded monthly. Find the total balance after three years.
4. The Fresh and Green Company has a savings plan for employees. If an employee makes an initial deposit of \$1000, the company pays 8% interest compounded quarterly. If an employee withdraws the money after five years, how much is in the account?
5. Mr. and Mrs. Boyce bought a house for \$96,000 in 1995. Real estate values in their area increase approximately 4% each year. What was the value of the house in 2007? What is the value of the house in 2012?
6. Determine the final account balance of an investment if \$300 is invested at an interest rate of 6.75% compounded semiannually for 20 years.
7. The Greens bought a condo for \$110,000 in 2005. If its value appreciates at 6% per year, what will the value be in 2012?

**Algebra 2**  
**Unit 8**

Name \_\_\_\_\_

**INVESTMENTS** Find the total amount if \$5000 is invested for 10 years at a rate of 5.25% interest, compounded as indicated.

5. semiannually \_\_\_\_\_ 6. quarterly \_\_\_\_\_ 7. daily \_\_\_\_\_

**Find the final value of each investment.**

10. \$1000 at 4.5% compounded annually for 5 years \_\_\_\_\_  
11. \$800 at 6.2% compounded monthly for 10 years \_\_\_\_\_  
12. \$2300 at 8% compounded daily for 7 years \_\_\_\_\_  
13. \$10,000 at 7.7% compounded monthly for 3 years \_\_\_\_\_

**Find the final amount for each investment.**

17. \$100 earning 5% interest compounded annually for 3 years \_\_\_\_\_  
18. \$400 earning 6% interest compounded annually for 5 years \_\_\_\_\_

**Find the final amount for each investment.**

19. \$1300 earning 5% interest compounded annually for 10 years \_\_\_\_\_  
20. \$850 earning 4% interest compounded annually for 6 years \_\_\_\_\_  
21. \$720 earning 6.2% interest compounded semiannually for 5 years \_\_\_\_\_  
22. \$1100 earning 5.5% interest compounded semiannually for 2 years \_\_\_\_\_  
23. \$300 earning 4.5% interest compounded quarterly for 3 years \_\_\_\_\_  
24. \$1000 earning 6.5% interest compounded quarterly for 4 years \_\_\_\_\_  
25. \$5000 earning 6.3% interest compounded daily for 1 year \_\_\_\_\_  
26. \$2000 earning 5.5% interest compounded daily for 3 years \_\_\_\_\_